

## Megansett Harbor Subwatershed

### Bourne, Cape Cod, Massachusetts

Megansett Harbor Subwatershed is located in Bourne and Falmouth. It has an area of 1,267 acres.

The larger, well flushed outer basin of the embayment forms Megansett Harbor and the much smaller, shallower inner basin forms Squeteague Harbor. According to The Coalition for Buzzards Bay Baywatchers II report, these basins are important recreational harbors with about 150 moorings and 75 slips. The system also has several beaches and a public boat ramp and pier. Both harbors support shellfish resources, including bay scallops on occasion. Megansett and Squeteague are both open to shellfishing and are among the few embayments of Buzzards Bay that have no pollution caused bed closures. Both harbors currently support eelgrass beds, although in Squeteague Harbor the eelgrass area and coverage density has diminished.

Water quality in Megansett Harbor was among the best of all of the embayments monitored in Buzzards Bay. The health of Megansett Harbor is maintained through its relatively low watershed loadings and its open deep basin that exchanges with the high quality waters of Buzzards Bay. Megansett Harbor experiences a fresh water influence from the creek on the north side of Amerita Island. The inner portion, Squeteague Harbor, is showing degradation most likely caused by nutrient impacts from cranberry bog discharges, leaching from failing septic systems, and resident flocks of geese. Most of the system's nitrogen enters the inner harbor through the groundwater. Squeteague Harbor has low flushing and cannot assimilate the nutrient inputs. The Cape Cod Commission's Surface Water Management Study (June 2002) indicated that Rands Harbor and Fiddlers Cove are experiencing excessive nitrogen loads.

Overall, nitrogen sources are small due largely to the fact that more than 50% of the watershed is undeveloped, existing as either protected open space (18.5% permanently preserved), public water supply protection areas, or part of the Massachusetts Military Reservation. The nitrogen that does enter the system comes predominantly from residential septic systems. There are only about 100 acres that have not been developed, but are available for development, so conversion of seasonal residences to year-round is a greater threat than new development.

A flushing study published in 1999 showed that large portions of the harbor exchange water freely with Buzzards Bay (less than one day), but the more remote regions take longer to exchange water with the Bay (over 100 days). The remote embayments do flush rapidly, however, with their adjacent water body.

The northern portion of the Megansett Harbor watershed falls within the Massachusetts Military Reservation. Past oil, fuel, chemical, and hazardous waste disposal activities on the base have created ground water pollution plumes, one of which is located within this watershed. The Air Force Center For Environmental Excellence (AFCEE) is investigating and addressing this groundwater pollution. Plume LF-1 from MMR is on its way to the harbor and will likely be a consideration in future years. In Spring 2002, three of the town's six public water supply wells were closed after traces of the chemical perchlorate, used in explosives, were found in them.

There is a municipal water system, but no municipal sewers within the Megansett Subwatershed.

### Stewards:

- The Coalition for Buzzards Bay ([www.savebuzzardsbay.org](http://www.savebuzzardsbay.org))
- Cataumet Civic Associates
- Falmouth Associations Concerned with Estuaries and Saltponds (FACES)

### Studies conducted in the watershed:

- Baywatchers II. Nutrient related water quality of Buzzards Bay embayments: a synthesis of Baywatchers monitoring 1992-1998. The Coalition for Buzzards Bay. December 1999.
- Flushing characteristics of the Red Brook & Megansett Harbor System: Field Measurements and Numerical Modeling (July 1999).
- Atlas of Tidally Restricted Salt Marshes – Buzzards Bay Watershed, Massachusetts. 2002. Buzzards Bay Project National Estuary Program.
- Atlas of Stormwater Discharges in the Buzzards Bay Watershed, Final Draft. June 2002. Buzzards Bay Project National Estuary Program.
- Cape Cod Surface Water Nutrient Management Study: Final Report. June 2002. Cape Cod Commission Water Resources Office. (Nitrogen loading assessment of the Megansett Harbor system).

### Who is collecting water quality data and where:

- The Coalition for Buzzards Bay – Baywatchers. Sample for temperature, water clarity, salinity, dissolved oxygen, chlorophyll a, nitrogen, and phosphorus.
- Cataumet Civic Associates. Sampling in Squeteague Harbor four times/year for physical parameters, nitrate-nitrogen, ammonia-nitrogen, phosphate, copper, and sulphur.

### Management actions taken:

- Unknown

### Subwatershed facts: (For data sources see Appendix)

- 21 E sites: 2 on the Massachusetts Military Reservation
- Solid waste sites: none
- Zone IIs located in this watershed: 1
- Percent of the undeveloped land that is currently protected (according to 1985/1990 data): 41.7%
- Acres of existing wetlands: 2
- Certified vernal pools: 3
- Named freshwater ponds & lakes: Osborne (*Bourne*), Trout, Cedar Lake (*Falmouth*)
- Named rivers or creeks: none
- Shellfish growing areas: Megansett Harbor – conditionally approved for shellfish harvesting. Squeteague Harbor – seasonal closure.
- This watershed contains Natural Heritage and Endangered Species Program (NHESP) Estimated Habitats of Rare Wildlife.

### Priorities:

- Examine measures to discourage waterfowl around Squeteague Harbor or address bacteria and nitrogen impacts from waterfowl. Consider DNA testing of the water to determine if source of bacteria is waterfowl.
- Investigate the culvert south of Amerita Island.
- Acquire open space. Parcels considered a priority for acquisition for water supply protection and development: Bourne Tracts 5, 9, 10, 15, 16, 18, 22, 23, and 30 were ranked as having medium or high water supply development potential in the Cape Cod Commission's *Priority Land Acquisition Assessment Project* (April 1999). These tracts are located throughout the Town of Bourne.
- Implement those salt marsh restoration projects identified in the *Atlas of Tidally Restricted Salt Marshes – Buzzards Bay Watershed* that have been evaluated and prioritized by the town.
- Implement nitrogen management measures to remediate decline of Squeteague Harbor water quality. (From The Coalition for Buzzards Bay Baywatchers II Report.)
- Preserve forested parts of watershed, including the forested areas of the Massachusetts Military Reservation. (From The Coalition for Buzzards Bay Baywatchers II Report).
- Focus on reducing nitrogen load to Squeteague Harbor as a means of improving water quality in both Squeteague and Megansett Harbors. (From The Coalition for Buzzards Bay Baywatchers II Report).

### Recreation:

Camping areas: none

Golf courses: none

Pathways and trails:

- [www.capecodcommission.org/pathways/trailguide.htm](http://www.capecodcommission.org/pathways/trailguide.htm)

Public access:

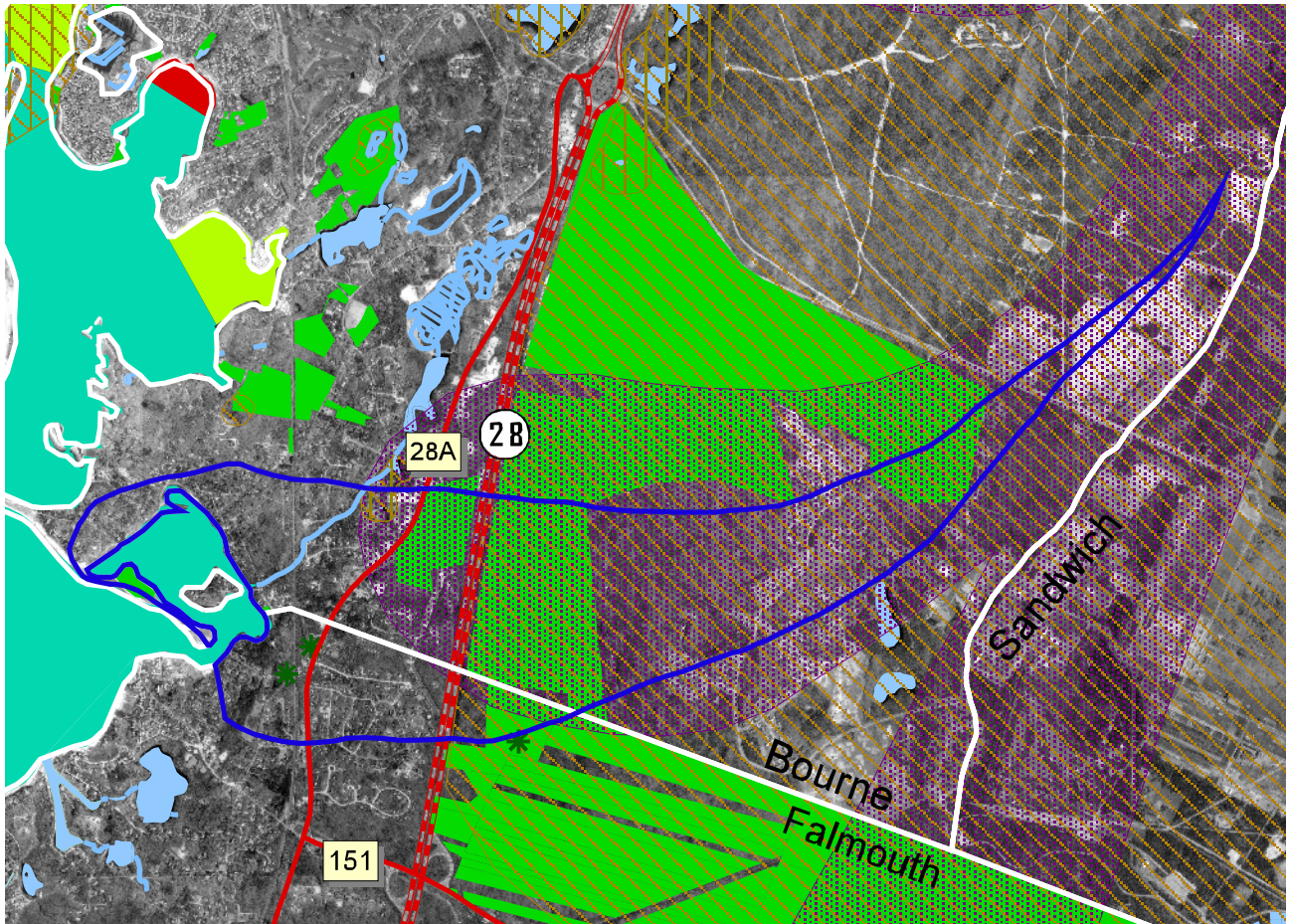
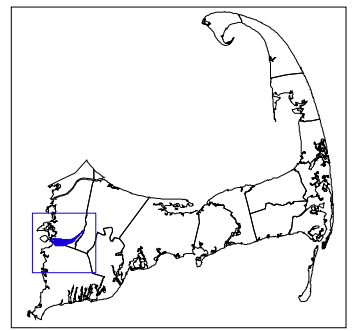
- [www.state.ma.us/dfwele/pab/pabSEmap.htm](http://www.state.ma.us/dfwele/pab/pabSEmap.htm)

Public beaches and landings:

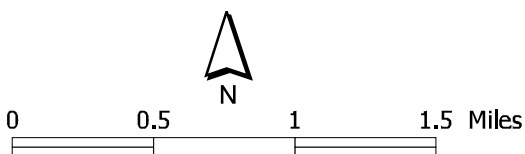
- Southwest, Sunrise, Eustis, Squeteague Harbor, Megansett Beaches
- 1 boat landing
- 100 moorings and slips in the Bourne section of this subwatershed

# Megansett Harbor

Bourne and Falmouth, MA



## Watershed Resources



### Natural Heritage and Endangered Species Program Data

- Certified Vernal Pool
- Priority Habitats of Rare Species
- Estimated Habitats of Rare Species

### Groundwater Protection Areas

- Interim Wellhead Protection Area
- Zone II
- Solid Waste Facility

Watershed Boundary

Anadromous Fish Run

### Shellfish Growing Areas

- APPROVED
- CONDITIONALLY APPROVED
- MANAGEMENT CLOSURE
- PROHIBITED
- RESTRICTED

Open Space

Streams

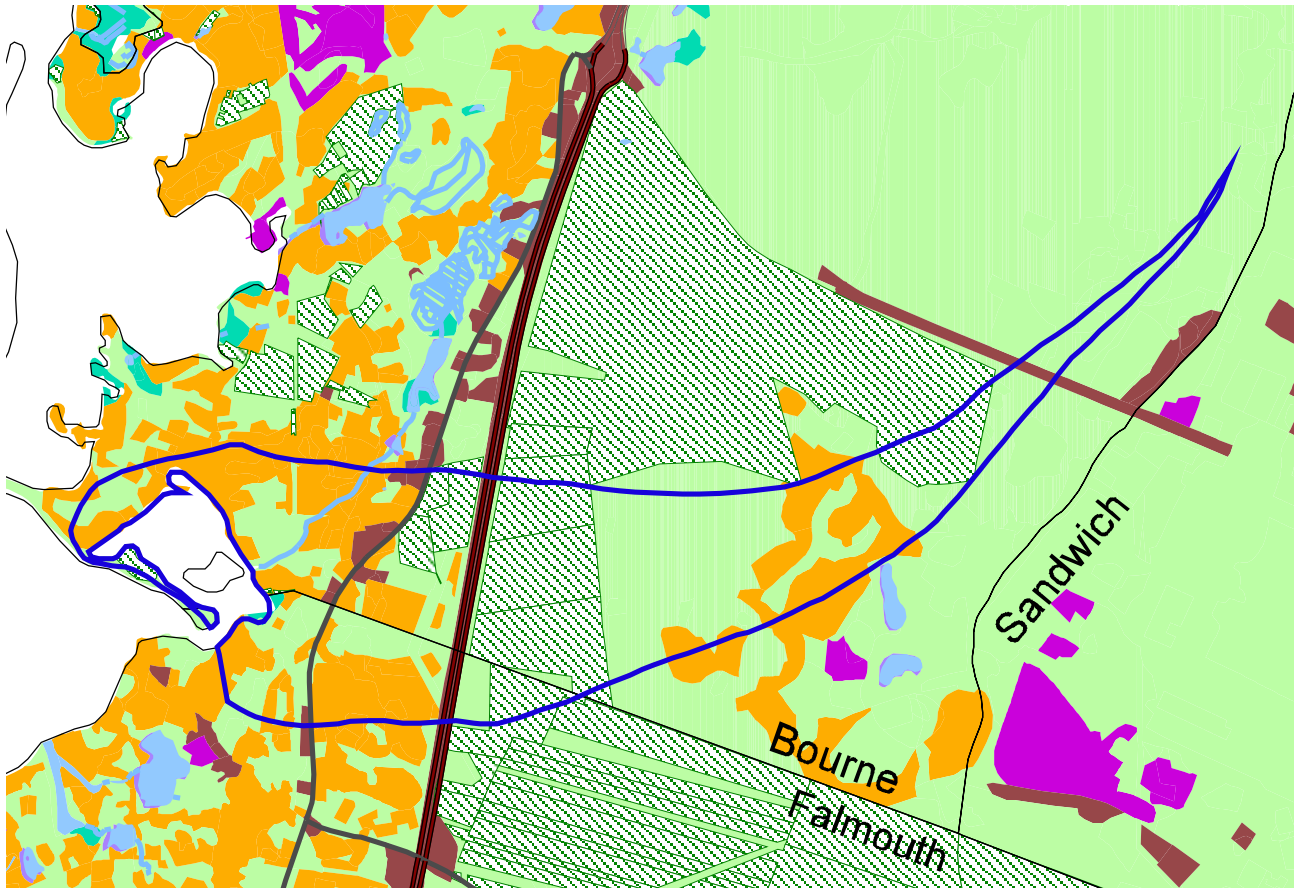
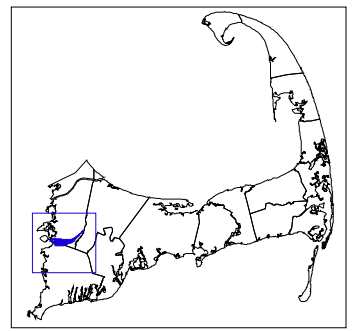
Ponds

Roads



# Megansett Harbor

Bourne and Falmouth, MA



## Land Use



0 0.5 1 1.5 Miles

## Land Use

- non-residential developed
- open land
- recreation
- residential
- water
- wetland
- Streams
- Ponds
- Watershed Boundary
- Protected Open Space

